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Notes on *Conothamnus* Lindl. with the description of a new section, sect. *Gongylocephalus* Craven (Myrtaceae)

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Abstract

New morphological observations of *Conothamnus* Lindl. are reported and the new section, *Gongylocephalus* Craven, is described to accommodate *Trichobasis* Turcz. *nom. illeg.* which has been included in *Conothamnus* without taxonomic recognition until now.

Introduction

Conothamnus Lindl. was established by Lindley in 1839, based upon the single species *C. trinervis* Lindl. In 1852 Turczaninow described the genus *Trichobasis* Turcz. with *T. aurea* Turcz. its sole species. The name *T. aurea* is typified by the KW set of the collection *Drummond 5th coll. 147*. Turczaninow's generic name is illegitimate, being a later homonym of *Trichobasis* Léveillé, published in 1849. Bentham (1867) in effect transferred *Trichobasis aurea* to the previously monotypic *Conothamnus* when he described *C. divaricatus* Benth. the name of which is typified by the K set of the type collection of *T. aurea*. In 1904 Diels added a third species to *Conothamnus*, *C. neglectus* Diels. All three species are restricted to the southwest of Western Australia.

Conothamnus, including *Trichobasis*, has been treated as one of the several genera related to *Melaleuca* L., from which it has been distinguished by previous authors (e.g. Bentham 1867; Johnson & Briggs 1983; Rye 1987) by possession of a single ovule in each locule compared to several ovules per locule in *Melaleuca*. My observations of the three species of *Conothamnus*, *C. aureus*, *C. neglectus* and *C. trinervis*, were incongruent with those generally recorded in the literature. Primarily, the differences noted between the three species of *Conothamnus* and *Melaleuca* are:

C. trinervis, *C. aureus*, *C. neglectus*: Ovules 2 per locule, one on each side of an axile-basal and sometimes flange-like placenta, laterally or laterally-basally attached. Seeds 1 or 2 per locule, semi-obovoid, or narrowly or flattened obovoid, concave on the placental side, the testa coriaceous or thinly coriaceous, white or whitish-brown. Abortive/sterile ovules not developing into chaff.

Melaleuca: Ovules several to numerous, irregularly arranged on an axile-median to axile-basal peltate placenta, basally attached. Seeds few per locule, angular oblong-obovoid to subobovoid, the testa membranous, brown. Abortive/sterile ovules developing into chaff.

Within *Conothamnus* two groups may be distinguished as follows:

C. trinervis: Flowers in triads. Placenta well developed and distinctly flange-like. Seed semiobovoid, strongly concave on the placental side, the testa coriaceous, white.

C. aureus, *C. neglectus*: Flowers in dyads. Placenta not well developed. Seed narrowly or flattened obovoid, the testa thinly coriaceous, white or whitish-brown.

The above differences are indicative of two evolutionary lines within *Conothamnus* and taxonomic recognition at sectional level is warranted. Although the epithet *Trichobasis* is available for use at infra-generic rank, the section that includes the nomenclatural type of *Trichobasis*, *T. aureus*, is described as new with a new epithet, *Gongylocephalus*. Features of the placentation and seed of *Conothamnus* and the type species of *Melaleuca*, *M. leucadendra* (L.) L., are illustrated in Fig. 1.

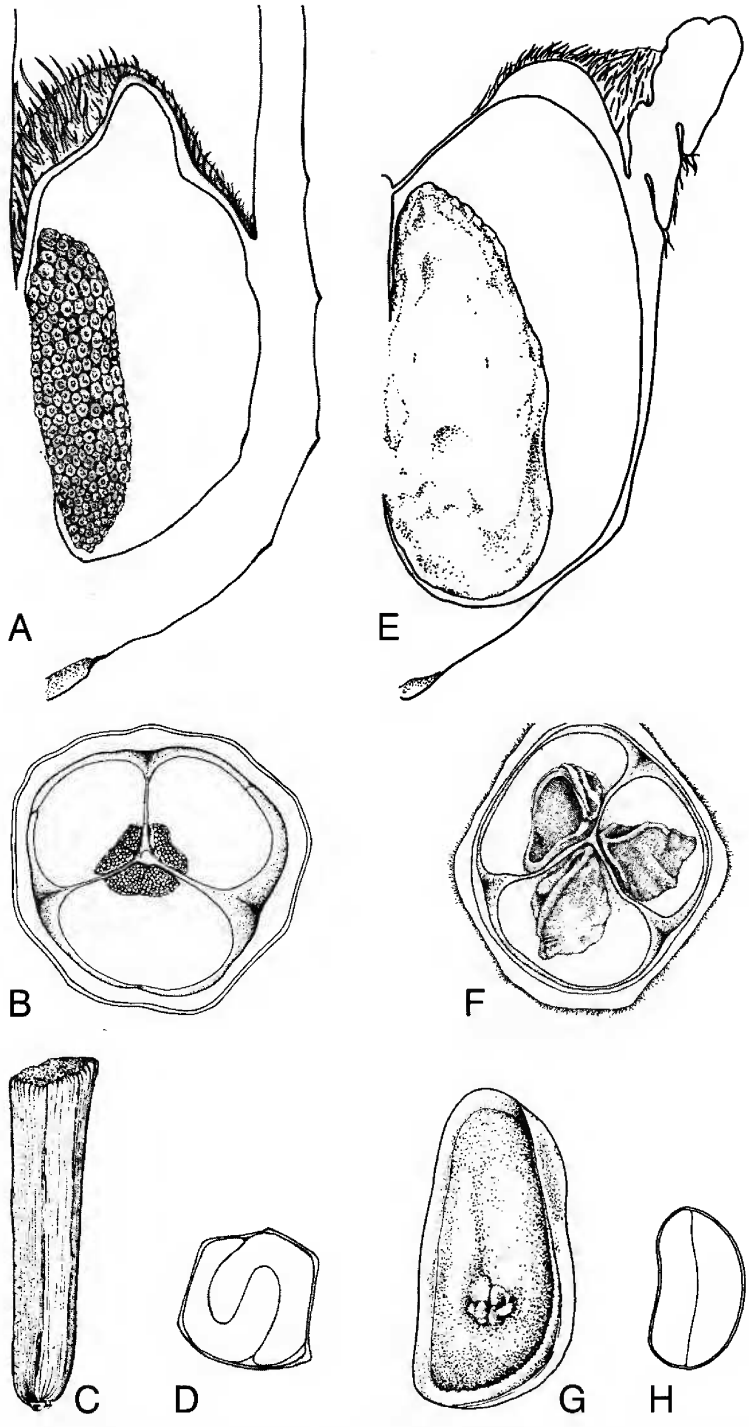

Figure 1. The ovary and seed of *Conothamus trinervis* (**E**, **F**, **G**, **H**) and *Melaleuca leucadendra* (**A**, **B**, **C**, **D**). **A**,**E**: longitudinal view through ovary locule; **B**, **F**: cross-sectional view through ovary locule (the flange-like placenta in F distorted as an artefact of drying). **C**, **G**: seed. **D**, **H**: cotyledon form. **A–D** from *Lazarides & Adams 322* (CANB); **E** from *Hoyle 211* (CANB); **F–H** from *Hnatiuk 760250* (PERTH).

Conothamnus Lindl., *Edwards's Bot. Reg. Appendix* vols 1–23: ix (1839). *Melaleuca* sect. *Conothamnus* (Lindley) Baill., *Hist. pl.* 6: 359 (1876). *Species typica*: *C. trinervis* Lindl.

Conothamnus sect. ***Conothamnus***

Shrubs. Leaves decussate or rarely ternate; venation parallel. *Inflorescences* capitate or spicate, pseudoterminal with the apex usually growing on after anthesis, several- to many-flowered. Flowers in triads, each triad subtended by a bract and with the constituent flowers all ebracteolate or variably bracteolate; not stipitate; perigynous. Hypanthium adnate to the ovary for the proximal 1/4 to 1/2 of the ovary. Sepals 5. Petals 5. Stamens indefinite; filaments fused into 5 antepetalous bundles; anthers dorsifixed, versatile, 2-celled, dehiscing by longitudinal slits. Ovary 3-locular; ovules 2 per locule, one each side of an axile-basal flange-like placenta, laterally attached. Stigma punctiform. *Fruit*, dry, not or scarcely woody, the locules dehiscing by valves. Seeds 1 or 2 per locule, semi-obovoid, concave on the placental side, the testa coriaceous, white. Embryo with the cotyledons about 1/2 the embryo length and flattened planoconvex.

C. trinervis Lindl., *Edwards's Bot. Reg. Appendix* vols 1–23: ix (1839). *Typus*: Western Australia, *Drummond s.n.* (holotypus CGE, *n.v*, photo in CANB).

Melaleuca cuspidata Turcz., *Bull. Soc. Imp. Naturalistes Moscou* 35: 327 (1862). *Typus*: Western Australia, *Drummond 7th coll. 77* (holotypus KW; isotypi MEL, NSW).

Conothamnus trinervis occurs in the Eneabba-Badgingarra district and in the Kalamunda area.

Conothamnus sect. ***Gongylocephalus*** Craven, *sect. nov.*

A sectione typica floribus duplicatis; petalis praesentibus vel carentibus; filamentis staminalibus liberis et staminis 5-aggregatis vel dispersis vel staminis coalitis in quinque fasciculis; stylis usque 5 mm longis; et placenta non distincte pteroidea differt.

Species typica: *Conothamnus aureus* (Turcz.) Domin

Trichobasis Turcz., *Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg* 10: 337 (1852), *nom. illeg.*; non Léveillé (1849). *Typus*: *T. aureus* Turcz.

Shrubs. Leaves decussate to subdecussate; venation parallel-pinnate. *Inflorescences* capitate or spicate, pseudoterminal and sometimes also in distal leaf axils, with the apex usually growing on after anthesis, several- to many-flowered. Flowers in dyads, each dyad subtended by a bract and with the constituent flowers ebracteolate; stipitate or not; perigynous. Hypanthium adnate to the ovary for the proximal 1/4 to 2/3 of the length of the ovary. Sepals 5 (rarely 6). Petals 5 (rarely 6) or absent. Stamens indefinite; filaments free and the stamens grouped in antepetalous clusters (sometimes dispersed around the hypanthium apex) or fused in 5 antepetalous bundles; anthers dorsifixed, versatile, 2-celled, dehiscing by longitudinal slits. Ovary 3-locular; ovules 2 per locule, one on each side of a small axile-basal non-peltate placenta, laterally-basally attached. Stigma punctiform. *Fruit* dry, not or scarcely woody, the locules dehiscing by valves. Seeds usually 1 per locule, narrowly or flattened obovoid, the testa thinly coriaceous, white or whitish-brown. Embryo with the cotyledons about 1/2 the embryo length and flattened planoconvex.

The new sectional epithet is derived from the Greek *gongylos* (ball, sphere) and *kephale* (head) in reference to the shape of the inflorescence.

C. aureus (Turcz.) Domin, *Mem. Soc. Roy. Sci. Boheme. Prague* 1921–2 2: 91 (1923). *Trichobasis aurea* Turcz., *Bull. Cl. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg* 10:

337 (1852). *Typus*: Western Australia, *Drummond 5th coll. 147* (holotypus KW, *n.v.*, photo in PERTH *n.v.*; isotypi G, K *n.v.*, MEL, NY *n.v.*).

Conothamnus divaricatus Benth., *Fl. Austral.* 3: 164 (1867). *Typus*: Western Australia, *Drummond 5th coll. 147* (holotypus K, *n.v.*; isotypi G, KW *n.v.* photo in PERTH *n.v.*, MEL, NY *n.v.*).

This species occurs from the Stirling Range east to Israelite Bay.

C. neglectus Diels in Diels & Pritzel, *Bot. Jahrb. Syst.* 35: 430 (1904). Syntypi: Western Australia: Mt Melville near King George Sound, *Mueller s.n.* (B†, ?MEL *n.v.*); near Cranbrook, *Diels 4438* (B†; PERTH fragm); about 15 km N of Albany, *Diels 6034* (B†).

C. neglectus occurs from Walpole east to Albany and as far north as Borden.

The name *C. neglectus* is not being lectotypified here as a thorough search for other syntypes or isosyntypes has not been made. More ample materials of *Diels 4438* and/or *6034* than the fragment of *Diels 4438* in PERTH may exist. Material from Mount Melville, ascribed to Mueller by Diels in the protologue, has not been seen from MEL but, in view of the wide distribution of specimens from MEL to European and north American herbaria, such material may be extant.

Key to the species of *Conothamnus*

1. Flowers in triads; style 12-15 mm long (petals present) ..... *C. trinervis*
1. Flowers in dyads; style 2-5 mm long
   2. Petals absent; style 3.4-5 mm long ..... *C. aureus*
   2. Petals present; style 2-2.5 mm long ..... *C. neglectus*

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